PROPOSED AMENDMENT TO H.A.R. 11-54-03 and 05,
CLASSIFICATION, USES AND SPECIFIC CRITERIA FOR INLAND WATERS
(PERENNIAL STREAMS)
-RATIONALE -
Hawaii State Department of Health
Environmental Planning Office
July, 2002

The proposed changes to the classification of inland waters, which are intended to improve the administrative foundation for support of the Clean Water Act 303(d) program in Hawaii, are based on a watershed approach to water quality management. The CWA 303(d) process, which requires both preparation of the List of Impaired Waters and Total Maximum Daily Load (TMDL) pollution budgets for impaired waters, is used to reduce the negative effects of pollution on Hawai'i's impaired waterbodies through improving management of polluted runoff and point source discharges.

Hawai'i's land use-based stream classification system has been in the rule since 1979, and assigns waters within refuges of various types to Class 1 status (designated uses for the existing Class 1a include scientific & educational purposes, protection of native breeding stock, compatible recreation, aesthetic enjoyment and other compatible nondegrading uses; designated uses for the existing Class 1b include domestic water supplies, food processing, protection of native breeding stock, support and propagation of aquatic life, scientific and educational purposes, compatible recreation and aesthetic enjoyment). All remaining streams and stream sections are currently placed in Class 2 (designated uses are recreation, support and propagation of aquatic life, agricultural and industrial water supplies, shipping and navigation).

We propose to retain the existing land use-based classification of perennial streams and add two new temporary classes for impaired waters. Existing classes 1a and 1b and their designated uses are proposed for combination into a single Class 1a; the existing Class 2 has been renamed Class 2a. Impaired perennial streams which are either listed by name on the current (1998) CWA 303(d) List or which are tributary to these waters are proposed for inclusion in the two new temporary classes, either Class 1b (for impaired Class 1a perennial streams) or Class 2b (for impaired Class 2a perennial streams).

This system does not correspond to the federal Tier I, II and III water quality based classification system, although higher quality waters in the state are generally associated with conservation lands and refuges, especially at higher elevations where land uses causing increases in polluted runoff are prohibited. Good-quality waters in Hawaii are found along both class 1 and class 2 streams. The State classification system was not designed to be compatible with the federal system, although EPA, recognizing the unique and isolated nature of these islands, has approved the current State land-use based classification.

Stream assessments carried out for Department of Health (HIDOH) stream water quality management purposes include measurements of the degree of impairment of chemical and physical water quality, and of habitat and aquatic communities in a stream. If the data support the conclusion that the water is impaired by pollutants, the stream system would, if not already listed or tributary to a listed water, be proposed for listing on the 303(d) list of impaired water bodies. After listing, these streams will be included in the new "b" classes, which are temporary classes for impaired perennial streams that retain the potential to meet Class 1a or Class 2a goals.

Classification lists and maps of the perennial streams, to be used for guidance purposes only, will be maintained on the Environmental Planning Office website http://www.hawaii.gov/health/eh/epo/wqrev.htm (lists are also available at the end of this document) and will be available for use at the department's environmental management division and district health offices.

After a stream or its receiving water is placed on an EPA-approved CWA 303(d) List a Total Maximum Daily Load (TMDL) will be established by HIDOH, with EPA approval, for each type of pollutant found to exceed the corresponding water quality criterion, followed by preparation of a TMDL implementation plan for the stream. The TMDL supports regulatory (primarily for point sources) and voluntary (primarily for nonpoint sources) control measures that are needed to restore the water quality of the stream. Once it has been determined that the implementation measures have been effective and the stream meets the Water Quality Standards, the stream will be removed from its "b" class and returned to its original classification of either 1a or 2a.

The 303(d) list is reviewed and updated biennially by HIDOH, and a public notice is issued for review of the draft list. The final list, including all supporting data and other information, written public comments and HIDOH's responses to comments, is submitted to EPA for approval. The public will have an opportunity to review waters proposed for listing during the public comment period.

Consistent with the ahupua`a approach, which uses stream drainage basins as the basic management unit, the rule requires that the "b" designation for impaired waters apply to the entire stream length. If a stream is on the 303(d) List or is tributary to listed waters, it enters the "b" class along its entire length, but will maintain its original 1 or 2 status (i.e., the headwaters of a stream may be Class 1b and the lower reaches 2b) (Figure 2). The stream will maintain its "b" listing until it or its receiving waters are removed from the Clean Water Act §303(d) list.

Perennial stream assessments will be carried out with the use of two primary tools - the existing chemical and physical water quality criteria for streams and the proposed habitat and biotic integrity criteria. The proposed habitat and biotic integrity scores will be used for purposes of stream classification only. In practice, these protocols will be applied primarily when a stream is proposed for reclassification and when TMDLs are prepared for impaired streams.

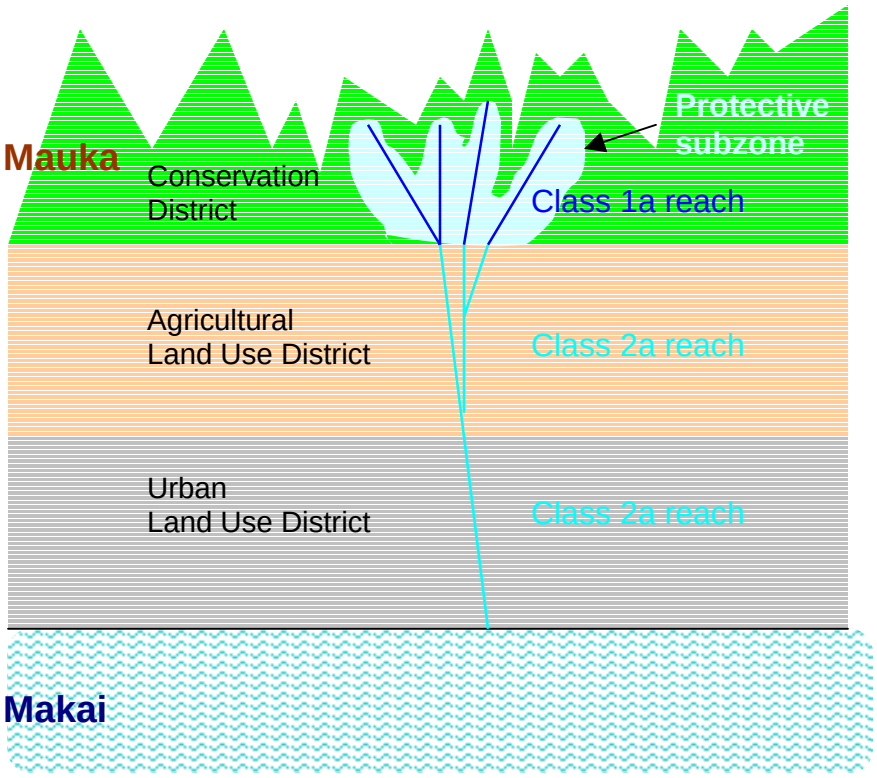

Figure 1: Example of classification of a typical stream.

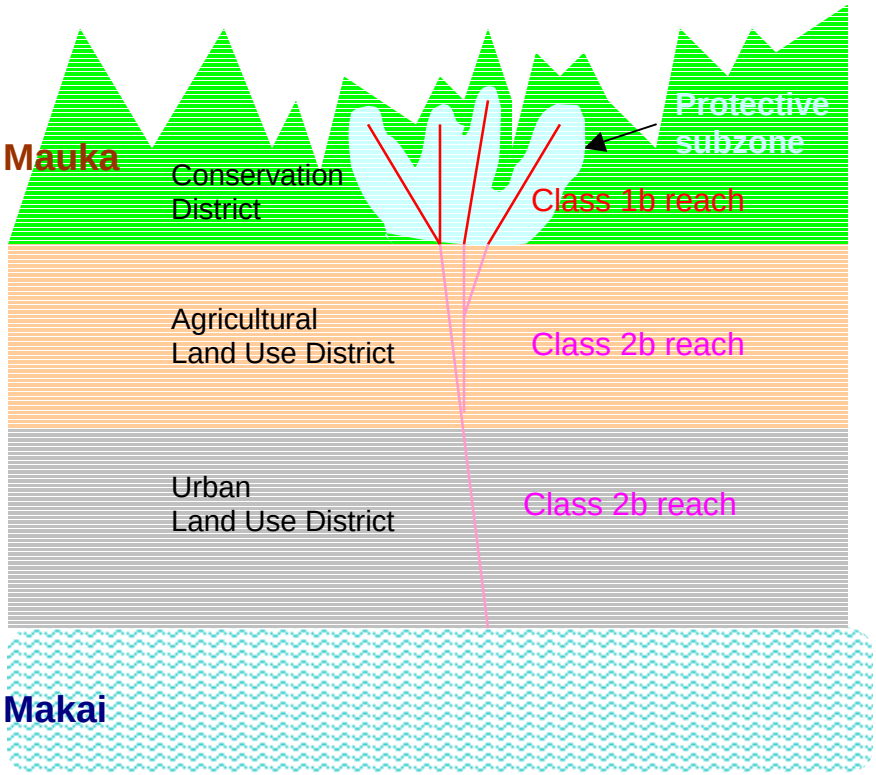

Figure 2: Example of classification of a typical stream that has been surveyed, found to be impaired and placed on the 303(d) List.

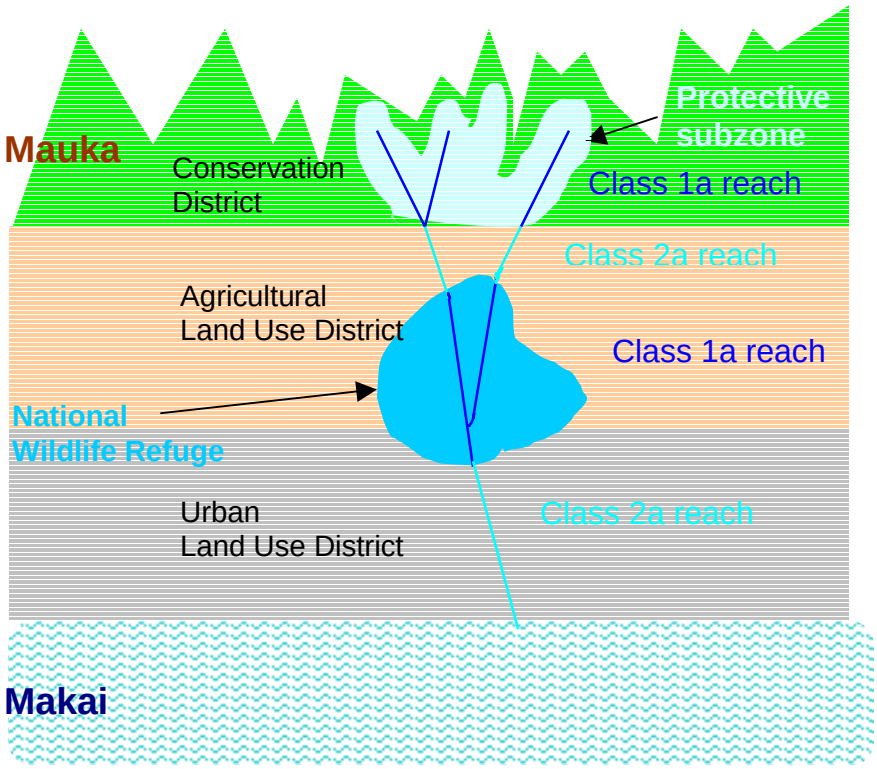

Figure 3: Example of one of 15 situations where a section of the stream is in Class 2a but is located upstream from a Class 1a reach. In this example the classification is retained because of existing agricultural uses, but, unless polluted runoff is controlled by adequate BMPs, this situation may lead to water quality impairments in the refuge. Refuge water quality may also be impaired by runoff from upstream urban land uses.

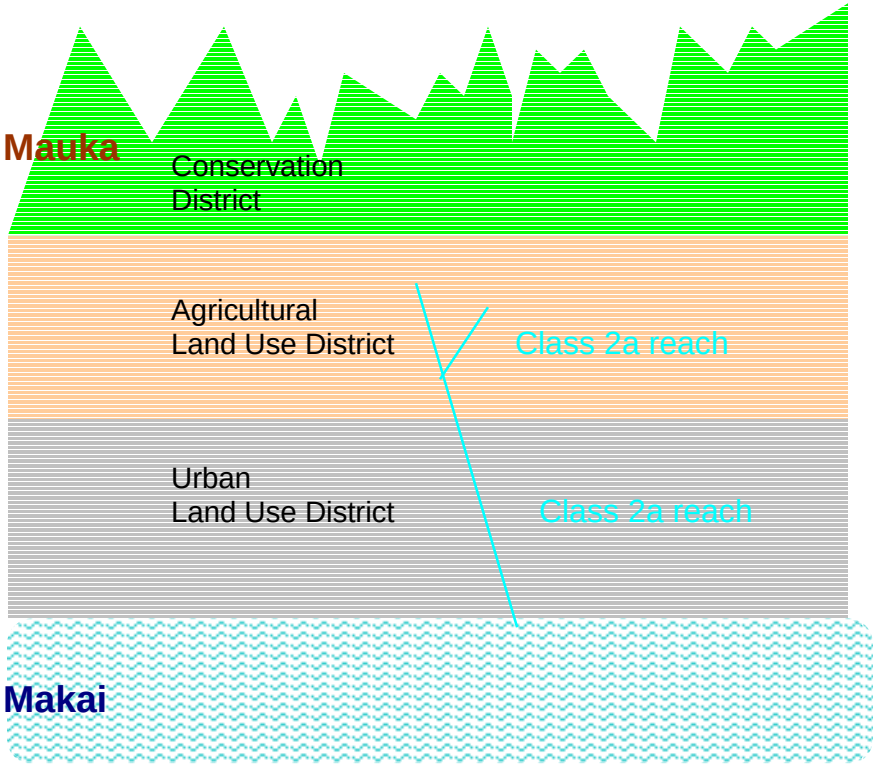

Figure 4: Example of a short stream whose headwaters do not originate in a Conservation District Protective Subzone.

Definition of Class 1a perennial streams

Because Class 1a streams are in protected land use categories, they have the potential for "good" water quality although this condition may not be realized as a result of upstream land use impacts. The proposed revision simplifies the existing classification by combining Class 1a and 1b into Class 1a, which includes those sections of streams in nature reserves, parks, refuges and the Conservation District Protective Subzones (see HAR 11-54-05.1(a)(1)).

Classification criteria for Class 1a streams and stream reaches are now explicitly stated:

1. For water quality, the sample geometric means for water quality parameters listed in 11-54-05.2(b), specific criteria for streams, shall not exceed the given values and

2. For habitat and biotic integrity of aquatic communities, the basic methodology described in the Hawaii Stream Bioassessment Protocol, Version 3.01 (Kido 2002) shall be applied. Class 1a streams should maintain scores greater than or equal to 75 percent of reference condition for habitat and greater than or equal to 70 percent of reference condition for biotic integrity of aquatic communities. HSBP will only be used in concert with other available information, including water chemistry to determine classification.

The statement restricting public access to drinking water supplies has been eliminated because it is no longer necessary. All potable surface waters are now treated before distribution. Also, no protected uses have been removed and no new restrictions have been added.

If a Class 2a stream is surveyed and found to meet the Class 1a habitat and biotic integrity criteria, and other existing and readily available information, including water chemistry data, support the Class 1a designation, it may be re-designated as Class 1a. Redesignation is unlikely; streams surveyed to date in developed areas are often either impaired or barely support class 2a uses. The new designation, if any, will be shown on HIDOH's stream classification maps, to be used for guidance purposes only. As mentioned above, copies of the maps are available for examination on the Internet (http://www.hawaii.gov/health/eh/epo/index.htm), and at the department's environmental management division and district health offices.

Definition of Class 2a perennial streams

The definition of the new Class 2a waters is the same as the existing definition for Class 2 waters. Class 2 contains all streams not placed in Class 1a, 1b or 2b. No protected uses have been removed and no new restrictions have been added.

The classification criteria for Class 2a streams are now explicitly stated:

1. For water quality, the sample geometric means of water quality parameters listed in 11-54-05.2(b), specific criteria for streams, shall not exceed the given values.

2. For habitat and biotic integrity of aquatic communities, the basic methodology described in the Hawaii Stream Bioassessment Protocol, Version 3.01 (Kido 2002) shall be applied. Class 2a should maintain scores falling within the range 50 to 75 percent of reference condition for habitat, and 30 to 70 percent of reference condition

for biotic integrity of aquatic communities. These results will be used to support designation as class 2a only in concert with other available information, including water chemistry.

New class – "b" class for Impaired Perennial Streams

The proposed new "b" classes (Class 1b and 2b) will not downgrade the current level of protection offered to any of the streams. The "b" class is a temporary class for impaired perennial streams that are currently listed on or are tributary to waters listed on Hawai`i's List of Water Quality-Limited Segments (Clean Water Act §303(d) list) and require a TMDL study. "b" class waters will typically be identified as extending from the uppermost reach to the seaward point at which salinity chronically exceeds 0.5 ppt.

The objective of "b" class waters (Class 1b and 2b) is to encourage action to be taken to improve stream water quality to ensure that these streams eventually meet their water quality standards and support their protected uses (Class 1a and 2a). Perennial streams will be returned to either Class 1a or Class 2a following EPA-approved removal of the stream or its receiving waters from the CWA 303(d) List of Water Quality-Limited Segments.

Class 1b and 2b streams have the potential to meet Class 1a or Class 2a goals but require significant water quality restoration in order to meet this goal. "b" class waters retain their original Class 1a or Class 2a protected uses even though these uses are not currently being supported.

Classification criteria and habitat and aquatic community scores for "b" class streams are as follows:

1. For water quality, the sample geometric means of one or more water quality parameters listed in 11-54-05.2(b), specific criteria for streams, exceed the given values.

2. For habitat and aquatic communities, the basic methodology described in the Hawaii Stream Bioassessment Protocol, Version 3.01 (Kido 2002) shall be applied. Scores less than or equal to 50 percent of reference condition for habitat, and less than or equal to 30 percent of reference condition for aquatic communities denote "b" class stream conditions. HSBP will only be used in concert with other available information, including water chemistry to determine class "b" status.

Habitat and Aquatic Community Assessment Methodology

The proposed revision uses the basic methodology described in *The Hawaii Stream Bioassessment Protocol, Version 3.01* by Kido (2002) to assess habitat and aquatic communities along with water chemistry data to classify streams. HIDOH has been using this peer reviewed-methodology for the past three years to assess streams as part of the Total Maximum Daily Load (TMDL) program. Scores greater than or equal to 75 percent of reference condition for habitat, and greater than or equal to 70 percent of reference condition for biotic integrity of aquatic communities are the goals for Class 1a streams. Scores falling within the range 50 to 75 percent of reference condition for habitat and 30 to 70 percent of reference condition for biotic integrity

of aquatic communities are the goals for Class 2a streams.

HIDOH will conduct workshops to acquaint consultants and others with the habitat and aquatic community assessment methodology. Once a stream has been sampled, the data forms associated with the methodology shall be submitted to DOH/EPO. Then, the stream will be classified as 1a, 2a, 1b or 2b. If a Class 2a stream is found to meet the Class 1a criteria for physical and chemical criteria and for habitat and biotic integrity scores, HIDOH will review other available information on the stream; then, if the evidence is consistent, HIDOH will classify it as Class 1a. This stream will be indicated on the stream classification maps, to be used for guidance purposes only. Copies of the maps are available for examination on the Internet (http://www.hawaii.gov/health/eh/epo/index.htm), and at the department's environmental management division, and district health offices.

Maps and Lists

The streams listed by name and depicted on the maps include only those perennial and significant streams defined by the Commission on Water Resource Management, Hawaii Stream Assessment Project (HSA), 1993, and found on the Hawaii Statewide GIS Program web site (http://www.state.hi.us/dbedt/gis/physical.htm).

The Hawaii Stream Assessment's perennial streams are based on USGS Digital Line Graphs (DLGs). HSA shows several different versions of the perennial streams for each island, but all are based on the USGS DLGs. The HSA varies from the USGS DLGs in some of the attribute data associated with each stream segment, by coding some of the stream reaches with unique codes, and by including stream information that the USGS layers do not contain. The maps, which are based on the best information currently available, can be used as a tool to aid in the determination and depiction of whether a stream flows through a Conservation District Protective Subzone or other protected areas and therefore is designated as Class 1a, or if a class 2a stream has been found to meet all class 1a classification requirements. These maps are intended for use as guidance only; stream lists will also accompany these maps as guidance. These maps will be revised periodically by HIDOH to reflect changes in land use designation and ground-truthing of stream location.

Revised classes for all other inland waters

In order to be consistent with the classification of perennial streams, the distinction between the uses of Class 1a and 1b has been removed for "all other inland waters," which include intermittent streams, springs and seeps, and man-made ditches and flumes. The water quality criteria remain the same and implementation, specifically with respect to the permitting program, will not be affected by this change.